49. (New) The method of claim 39, further comprising implanting the pluripotent cells, or differentiated cells derived therefrom, at a desired *in vivo* site that is to be engrafted with cells or tissue.

50. (New) The method of claim 49, further comprising implanting the pluripotent cells, or differentiated cells derived therefrom, in an immunocompromised animal.

51. (New) The method of claim 49, wherein said *in vivo* site is a wound, a joint, a muscle, a bone, or the central nervous system.

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52. (New) Pluripotent cells produced by the method of claim 39.

53. (New) The pluripotent cells of claim 52, wherein the cells are primate cells.

54. (New) The pluripotent cells of claim 53, wherein the primate cells are human cells.

55. (New) Differentiated cells produced by the method of claim 48.

56. (New) The differentiated cells of claim 55, wherein the cells are primate cells.

57. (New) The differentiated cells of claim 56, wherein the primate cells are human cells.

REMARKS

Status Summary

Claims 1-38 are pending in the application. Claims 17-32 and 36-38 are withdrawn from present consideration pursuant to 37 C.F.R § 1.142(b) as being drawn to a non-elected invention. Claims 1-16 and 33-35 were examined by the U.S. Patent & Trademark Office (herein after "the Patent Office").

The specification is objected to for informalities. It is suggested that the application fails to comply with requirements for receiving the benefit of an earlier filing date under 35 U.S.C. § 119(e). Claims 1-16 and 33-35 are rejected under 35 U.S.C. § 112, first paragraph, as not enabling the practice of the invention. Claims 1-16 and 33-35 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 33-34 are rejected under 35 U.S.C. §§ 102(a) and 102(e) as anticipated by U.S. Patent No. 5,843,780 to Thomson. Claims 33-35 are rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,200,806 to Thomson. Claims 1-9, 11-13, and 33 are rejected under 35 U.S.C. § 102(b) as anticipated by Newman-Smith & Werb (1995) *Development* 121:2069-2077 ("Newman-Smith"). Claims 1-9, 11-13, and 33 are rejected under 35 U.S.C. § 103(a) as obvious over Newman-Smith in view of U.S. Patent No. 5,843,780 to Thomson.

The specification has been amended to correct informalities and to properly secure the benefit of an earlier filing date under 119(e). Claim 2 has been deleted, and claims 1, 3-5, 9-11, and 13-14 have been amended as described below. New claims 39-57 have been added. Support for the addition of new claims 39-57 is described in detail in the Remarks presented below. No new matter has been added by any of the amendments or by the addition of new claims. Reconsideration of the application as amended and based on the arguments set forth below is respectfully requested.

Discussion of New Claims

New claims 39-57 have been added to more particularly point out and distinctly claim the present invention. Claim 39 recites a method for preparing an embryo comprising DNA derived from a single individual male or female mammal, and using an embryo so-prepared to produce pluripotent (ES) cells and differentiated cells derived therefrom.

Claim 40 recites one embodiment of the invention, wherein an embryo comprising DNA derived from a single individual male or female mammal is prepared by: (a) transferring a haploid cell, or haploid nucleus derived therefrom, to an enucleated blastomere to thereby form a nuclear transfer embryo; and (b) inhibiting the first cleavage of the nuclear transfer embryo. Claim 40 recites subject matter now deleted from claims 1 and 2.

Claims 41-54, which ultimately depend from claim 39, are analogous to claims 3-16 and 33-35, which ultimately depend from claim 1. Claims 55-57, which also ultimately depend from claim 39, recite differentiated cells prepared by the methods of the present invention.

Support for claims 39-57 can be found throughout the application as originally filed, including at page 15, line 28, through page 16, line 11, at page 17, lines 23-25, at page 18, lines 9-13 and 25-30, at page 19, lines 1-8, at page 25, line 21 through page 26, line 5. Accordingly, the new claims have added no new matter.

Objection to Informalities in the Specification

The Patent Office has objected to informalities in the specification. More particularly, the Brief Description of the Drawings contains references that are not present in the figures. Official Action, at page 3. In response thereto, the descriptions of Figure 1 through Figure 10 have been amended to delete references to labeled numbers that are not present in the Drawings.

Priority

The Patent Office has contended that applicants have not met requirements so as to be accorded the benefit of an earlier filing date under 35 U.S.C. § 119(e). Official Action, at pages 3-4. 37 C.F.R. §§ 1.78(a)(2) and 1.78(a)(5) provide that a priority claim to a provisional patent application is properly made by specific reference to the prior application in the first sentence of the specification or in an application data sheet. Applicants respectfully submit that specific reference to the subject prior application was properly made in the application data sheet, item 6, submitted with the instant application, and thus applicants believe that the claim for priority was properly made in accordance with 37 C.F.R. § 1.78. To further clarify this claim, applicants have additionally amended the specification to make specific reference to the prior application in the first sentence.

Rejection of Claims Under 35 U.S.C. § 112, First Paragraph

Claims 1-9, 11-16, and 33-35 are rejected under 35 U.S.C. § 112, first paragraph as not enabling a skilled artisan to practice the invention commensurate in scope with the claims. In particular, the Patent Office contends that the

specification does not teach how to perform the disclosed methods using male germ cells or blastomeres. Official Action, at page 4. With respect to male germ cells, the Patent Office bases this rejection on the differences in meiosis in female versus male germ cells and on the notion that male germ cells do not extrude polar bodies. Similarly, with respect to blastomeres, the Patent Office notes that blastomeres do not have polar bodies. Official Action, at pages 5-6. Applicants respectfully traverse this rejection based on the reasons set forth below.

Claim 1 has been amended to recite the use of a "metaphase II oocyte that comprises DNA derived from a single individual male or female mammal." Support for this amendment can be found in the application as originally filed, for example at page 18, line 9, through line 19, line 8. As described therein, to prepare an oocyte comprising DNA derived from a single individual male or female mammal, an oocyte is enucleated, and a nucleus derived from a male or female cell (*e.g.*, a male or female germ cell) is transferred to the enucleated oocyte. Thus, applicants respectfully submit that the Patent Office's concerns regarding the differences between meiosis in male and female germ cells, and the lack of polar bodies in male germ cells, are ancillary to the methods of the present invention.

Applicants also believe that claim 1 meets the enablement requirement of 35 U.S.C. § 112, first paragraph. Claims 3-9, 11-16, and 33-35 ultimately depend on claim 1, and these claims are also believed to meet the statutory enablement requirement for patentability. Claim 2 has been canceled, and the rejection of claim 2 under 35 U.S.C. § 112, first paragraph is thereby rendered moot. Accordingly, applicants respectfully request that the rejection of claims under 35 U.S.C. § 112, first paragraph, be withdrawn. Allowance of claims 1, 3-9, 11-16, and 33-35 is also respectfully requested.

Rejection of Claims Under 35 U.S.C. § 112, Second Paragraph

Claims 1-16 and 33-35 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention. Official Action, at page 7. Applicants respectfully traverse this rejection based on the arguments set forth below.

The Patent Office contends that claim 1 is unclear in reciting "a haploid cell in metaphase II that comprises DNA derived from a single individual." Official Action, at page 7. In particular, it is the opinion of the Patent Office that the type of cell encompassed by this claim is not clearly set forth because cells undergoing meiosis are only present in an individual, and therefore it is unclear what other DNA can be present in the cell. Official Action, at page 7. In response thereto, applicants initially note that claim 1 has been amended to recite "an oocyte in metaphase II that comprises DNA derived from a single individual male or female mammal." Oocytes undergoing meiosis can be cultured *in vitro*, enucleated, and a nucleus transferred therein. *See e.g.*, U.S. Patent No. 5,945,577. In accordance with the methods of the present invention, a nucleus comprising DNA can be procured from a single individual male or female mammal and then transferred to an enucleated, metaphase II oocyte. The methods for nuclear transfer are well known in the art, and thus applicants believe that claim 1 is not indefinite as asserted by the Patent Office.

The Patent Office also asserts that claim 1 is unclear based on the recitation of the phrase "optionally may be genetically modified," and that claim 16 is similarly unclear based on the recitation of "is genetically modified." Official Action, at page 7. More particularly, the Patent Office asserts that genetic modification is contrary to the recitation of DNA derived from a single individual. Further, the Patent Office asserts that the metes and bounds of the claim are not defined because the time at which genetic modification is made is unclear. Official Action, at page 7-8. Applicants respectfully submit that the methods of the present invention encompass genetic modification, and the time of genetic modification, whether prior to or subsequent to obtaining a cell comprising DNA derived from a single individual organism, is not limiting to the inventive methods of the subject application. In one instance, a nucleus is readily derived from a single individual genetically modified organism. Expression of a heterologous transgene in cells of an organism does not in any way preclude obtaining cells, and DNA of such cells, from a genetically modified organism. In addition, genetic modification of DNA in cells procured from a single individual organism is well known in the art. Thus, applicants respectfully submit that claims 1 and 16 are not indefinite as suggested.

Claims 4-5 and 9 are rejected as lacking antecedent basis for the phrase "the haploid DNA." Official Action, at page 8. Claims 4, 5, and 9 have been amended to recite "the DNA," which is set forth in the preceding claims. Claim 10 has been similarly amended.

The Patent Office asserts that claim 9 is vague and unclear in reciting haploid DNA of female origin. Official Action, at page 8. To more particularly point out the disclosed method, claim 9 has been amended to recite DNA "derived from a single individual female mammal." Claim 10 has been similarly amended to recite DNA "derived from a single individual male mammal."

The Patent Office further asserts that the claim 11 is confusing in reciting the phrase "containing male or female DNA" because, in the view of the Patent Office, DNA is not associated with either gender. Official Action, at page 8. In addition, the Patent Office contends that it is unclear how to prepare an oocyte with a Y chromosome. Official Action, at page 8. In response thereto, applicants initially note that claim 11 has been amended to recite "DNA derived from a single individual male or female mammal." In addition, applicants note that an oocyte comprising a Y chromosome can be prepared by nuclear transfer methods using a donor cell comprising a male germ cell, or a nucleus derived therefrom. Representative methods for nuclear transfer are described in the subject application (*e.g.*, at page 6, lines 20-24, at page 18, line 6 through page 19, line 13) and are well known in the art. *See e.g.*, U.S. Patent No. 5,945,577.

Claims 13-15 are rejected based on the recitation of "said cells" because several cell types are described in claim 1, from which claims 13-15 depend. Official Action, at page 8. Claims 13-14 have been amended to recite "the pluripotent cells, or differentiated cells derived therefrom." Claim 15 does not recite "said cells." Thus, claims 13-15 are believed to clearly identify the cell types used to perform the methods of claims 13-15.

Based on the foregoing arguments, applicants believed that claims 1, 4-5, 9, 11, and 13-15 particularly point out the invention as required under 35 U.S.C., second paragraph. Claims 3, 6-8, 10, 16, and 33-35, which depend from claims 1, 4-5, 9, 11, and/or 13-15, are also believed to comply with 35 U.S.C., second paragraph. Claim 2 has been canceled, and thus the rejection of claim 2 is rendered moot. Accordingly, applicants respectfully request that the rejection of claims under

35 U.S.C., second paragraph be withdrawn and that claims 1, 2-16 and 33-35 be allowed.

Rejection of Claims Under 35 U.S.C. § 102(a/e)
Based on U.S. Patent No. 5,843,780

Claims 33-34 are rejected under 35 U.S.C. §§ 102(a) and/or 102(e) as anticipated by U.S. Patent No. 5,843,780 to Thomson ("the '780 patent"). Specifically, the Patent Office contends that pluripotent cells produced by the method of claim 1 are not materially, structurally, or functionally different than pluripotent cells described in the '780 patent. Official Action, at page 10. Applicants respectfully traverse this rejection as follows.

The '780 patent describes methods for obtaining primate ES cells having characteristics of pluripotent stem cells. The ES cells described in the '780 patent were isolated from *rhesus macaque* and common marmoset embryos, and were cultured under conditions that maintain their undifferentiated state. Having been isolated from a living diploid organism, such pluripotent cells comprise DNA derived from both a maternal parent and a paternal parent. Prior to their use for preparing ES cells, the embryos from which such cells were derived were capable of developing into a complete organism.

The cloning methods of the subject application involve preparation of an embryo using genetic material from a single parent, which can thereafter be used to produce pluripotent stem cells. In contrast to a naturally occurring embryo as described in the '780 patent, embryos and cells of the present invention are uni-parental, *i.e.*, they contain genetic material from a single parent rather than from both maternal and paternal sources (*see* page 22, line 28, through page 23, line 12). In addition, pluripotent cell derived from embryos of the present invention, wherein each cell contains DNA of a single parent, do not development into complete organisms. Indeed, the limited developmental potential offers a particular advantage of the disclosed pluripotent cells with respect to human cell therapies (*see e.g.*, page 23, lines 13-19). Thus, the pluripotent cells of the present invention are materially, structurally, and functionally different that the pluripotent cells of described in the '780 patent.

Based on the foregoing, applicants believe that the uni-parental pluripotent cells recited in claims 33-34 are patentably distinguished over the di-parental pluripotent cells of the '780 patent. Thus, applicants respectfully request that the rejection of claims 33-34 under 35 U.S.C. § 102(b) based on the '780 patent be withdrawn. Allowance of claims 33-34 is also respectfully requested.

Rejection of Claims Under 35 U.S.C. § 102(e)

Based on U.S. Patent No. 6,200,806

Claims 33-35 are rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,200,806 to Thomson ("the '806 patent"). Specifically, the Patent Office contends that the claimed pluripotent cells produced by the method of claim 1 are not materially, structurally, or functionally different than pluripotent cells described in the '806 patent. Official Action, at page 11. Applicants respectfully traverse this rejection as follows.

The '806 patent, which contains a substantially identical specification as the '708 patent, describes human ES cells having characteristics of pluripotent stem cells. Similar to the '780 patent, the '806 patent describes preparation of ES cells from human embryos and culture of the ES cells under conditions that maintain their undifferentiated state. Such pluripotent cells comprise DNA derived from both a maternal parent and a paternal parent, *i.e.*, di-parental. The human embryos from which the ES cells were derived were capable full development and parturition.

Based on the arguments set forth herein above with respect to the '708 patent, which are incorporated herein by reference, the uni-parental pluripotent cells of the present invention comprise DNA derived from a single parent, and are therefore materially, structurally, and functionally different that the pluripotent cells of described in the '806 patent.

Thus, applicants believe that the uni-parental pluripotent cells recited in claims 33-35 are patentably distinguished over the di-parental pluripotent cells of the '806 patent. Accordingly, applicants respectfully request that the rejection of claims 33-35 under 35 U.S.C. § 102(b) based on the '806 patent be withdrawn. Allowance of claims 33-35 is also respectfully requested.

Rejection of Claims Under 35 U.S.C. § 102(b)

Claims 1-9, 11-13, and 33 are rejected under 35 U.S.C. § 102(b) as anticipated by Newman-Smith & Werb (1995) *Development* 121:2069-2077 ("Newman-Smith"). In particular, the Patent Office contends that Newman-Smith describes the use of an oocyte to perform the method recited in claim 1. Official Action, at page 11. Applicants respectfully traverse this rejection based on the arguments set forth below.

Initially, the Patent Office incorrectly summarizes claim 1 as follows:

> "Briefly, the claim encompasses (a) obtaining a haploid cell in metaphase II, (b) preventing the extrusion of the polar body, (c) culturing the resulting cell into a blastocyst stage, and (d) isolating the inner cell mass cells and culturing said cells." Official Action, at page 11.

Applicants respectfully submit that the foregoing summary overlooks aspects of applicants' invention that are recited in claim 1 and that are not described in Newman-Smith. In particular, step (d) of claim 1 recites "culturing said inner cell mass cells or cells derived therefrom to maintain said cells in an undifferentiated pluripotent state."

Newman-Smith describes preparation of mouse embryos containing only maternal chromosomes (parthenotes), which are uni-parental, and culture of inner cell mass cells (ICMs) derived therefrom. The Patent Office contends that some of the cultured cells represented pluripotent stem cells. Official Action, at page 12. However, applicants note that only control cells, which comprise DNA derived from both maternal and paternal parents (*i.e.*, di-parental cells), could be maintained in an undifferentiated state when cultured. Inner cell mass cells from parthenotes could not be maintained in an undifferentiated state. Rather, such cells differentiated almost exclusively into parietal endoderm. Newman-Smith states that "parthenote ICMs have a defect that leads to differentiation, rather than maintenance, of the stem cells, and a defect that leads to a parietal endoderm fate for the stem cells." Newman-Smith, at page 2069. Thus, in contrast to the method of claim 1, Newman-Smith does not describe culturing said inner cell mass cells in an undifferentiated pluripotent state.

Based on the foregoing, applicants respectfully submit that Newman-Smith does not anticipate the method of claim 1 nor the methods as recited in claims 3-9, 11-13, and 33, which ultimately depend from claim 1. Thus, claims 1, 3-9, 11-13,

and 33 are believed to comply with 35 U.S.C. § 102(b). Claim 2 has been canceled, and thus the rejection of this claim is rendered moot. Accordingly, applicants respectfully request that the rejection of claims 1, 3-9, 11-13, and 33 under U.S.C. §102(b) based on Newman-Smith be withdrawn. Allowance of claims 1, 3-9, 11-13, and 33 is also respectfully requested.

Response to the Rejections Under 35 U.S.C. §103

Claims 1-9, 11-13, and 33 are rejected under 35 U.S.C. § 103(a) as obvious over Newman-Smith in view of U.S. Patent No. 5,843,780 to Thomson. Specifically, the Patent Office contends that at the time of the claimed invention, it would have been obvious to prepared ES cells according to Newman-Smith and to perform known methods for using such ES cells, as described in the '780 patent. Applicants respectfully traverse this rejection as follows.

Based on the arguments set forth herein above with respect to the Newman-Smith journal article and the '780 patent, which are incorporated herein by reference, the present invention is patentably distinguished over the cited art. Newman-Smith does not teach preparation of cells comprising DNA derived from a single individual and that can be cultured in an undifferentiated state. In particular, neither Newman-Smith nor the '780 patent teaches nor suggests the preparation and use of uni-parental pluripotent cells, as disclosed in the subject application. Rather, Newman-Smith describes that cells prepared from parthenotes can not be cultured in an undifferentiated state typical of pluripotent cells. The '780 patent only discloses preparation and culture of pluripotent cells comprising DNA of both maternal and paternal parents, *i.e.* di-parental cells. Thus, the combination of Newman-Smith and the '780 patent, as proposed by the Patent Office, does not teach or suggest how cells comprising DNA derived from a single individual, *i.e.* uni-parental cells, can be cultured in a pluripotent, undifferentiated state as recited in claim 1.

Therefore, applicants believe that the rejection of claims 1-9, 11-13, and 33 under U.S.C. §103 based on Newman-Smith and the '780 patent is overcome. The cited references do not render claim 1 obvious under 35 U.S.C. § 103. Claims 3-9, 11-13, and 33, which ultimately depend from claim 1, are also not rendered obvious by the cited art. Claim 2 has been canceled, and thus the rejection of claim 2 is rendered moot. Accordingly, withdrawal of the rejection of claims 1-9, 11-13, and 33

under U.S.C. §103 is respectfully requested. Allowance of claims 1-9, 11-13, and 33 is also respectfully requested.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned attorney at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

PILLSBURY WINTHROP LLP

By: _____

Robin L. Teskin
Reg. No. 35,030

1100 New York Avenue, NW
Ninth Floor
Washington, DC 20005-3918
(202) 861-3000
(202) 822-0944 Facsimile

Date: November 21,2002

Enclosure: Appendix

APPENDIX: VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification has been amended as indicated below. Deleted text is included in brackets ([ ]) and added text is underlined.

The paragraph beginning on page 12, line 7, has been amended as follows:

Figure 1[(labeled 31-11)]: Embryoid body photographed at 100X magnification. Formed from explant plated directly on culture dish (no mouse fetal fibroblast feeder layer). Original colony (1023981-3) plated from a blastocyst activated previously. Light is deflected showing lipid content of cells.

The paragraph beginning on page 12, line 11, has been amended as follows:

Figure 2[(labeled 31-18)]: Embryoid body photographed at 100X magnification. Formed from explant plated directly on culture dish (no mouse fetal fibroblast feeder layer). Original colony (1023981-3) plated from a blastocyst activated a week prior.

The paragraph beginning on page 12, line 15, has been amended as follows:

Figure 3[(labeled 31-25)]: Embryoid body photographed at 100X magnification. Formed from explant plated directly on culture dish (no mouse fetal fibroblast feeder layer). Original colony (1023981-3) plated from a blastocyst activated week prior.

The paragraph beginning on page 12, line 19, has been amended as follows:

Figure 4[(labeled 32-1)]: Edge of explanted stem cell colony photographed at 40X magnification. Original colony (1023981-3) plated from blastocyst activated week prior. Stem cell colony is top left and mouse fetal fibroblast feeder layer is bottom right.

The paragraph beginning on page 12, line 23, has been amended as follows:

Figure 5[(labeled 32-3)]: Edge of explanted stem cell colony photographed at 100X magnification. Original colony (1023981-3) plated from blastocyst activated week prior. Stem cell colony is top left and mouse fetal fibroblast feeder layer is bottom right.

The paragraph beginning on page 12, line 27, has been amended as follows:

Figure 6[(labeled 32-5)]: Center of explanted stem cell colony photographed at 100X magnification. Original colony plated (1023981-3) from blastocyst activated week prior.

The paragraph beginning on page 13, line 1, has been amended as follows:

Figure 7[(labeled 32-12)]: Center of explanted stem cell colony photographed at 200X magnification. Original colony plated (1023981-3) from blastocyst activated week prior.

The paragraph beginning on page 13, line 4, has been amended as follows:

Figure 8[(labeled 35-6)]: Edge of explanted stem cell colony photographed at 40X magnification. Original colony (0106992-2) plated from blastocyst activated week prior. Stem cell colony is top right. Mouse fetal fibroblast feeder layer is bottom left. Light is deflected showing difference in lipid content between the cells of the stem cell colony and the mouse fibroblast feeder layer.

The paragraph beginning on page 13, line 9, has been amended as follows:

Figure 9[(labeled 35-8)]: Edge of explanted stem cell colony photographed at 40X magnification. Original colony (0106992-2) plated from blastocyst activated week prior. Stem cell colony is on the top. Mouse fetal fibroblast feeder layer is on the bottom. Light is deflected showing difference in lipid content between the cells of the stem cell colony and the mouse fibroblast feeder layer.

The paragraph beginning on page 13, line 14, has been amended as follows:

Figure 10[(labeled 35-19)]: Edge of explanted stem cell colony photographed at 200X magnification. Original colony (0106992-2) plated from blastocyst activated week prior. Stem cell colony is on the left. Mouse fetal fibroblast feeder layer is on the right. Photograph shows differentiation of the cells at the edge of the stem cell colony.

IN THE CLAIMS:

The claims were amended as indicated below. Deleted text is included in brackets ([ ]) and added text is underlined.

1. (Amended) A method for producing pluripotent (ES) cells that can be used to produce differentiated cells and tissues comprising:

(a) obtaining [a haploid cell] an oocyte in metaphase II that comprises DNA derived from a single individual male or female mammal, which optionally may be genetically modified;

(b) activating said [haploid cell] oocyte by a method selected from the group consisting of (1) conditions that do not result in second polar body extrusion; (2) conditions that provide for polar body extrusion but in the presence of an agent that inhibits polar body extrusion, and (3) conditions that prevent the initial cleavage, and culturing said activated [cell] oocyte to produce a gynogenetic or androgenetic embryo comprising a discernible trophectoderm and an inner cell mass;

(c) isolating said inner cell mass or cells therefrom and transferring said inner cell mass or cells to an *in vitro* media that inhibits differentiation of said inner cell mass derived therefrom; and

(d) culturing said inner cell mass cells or cells derived therefrom to maintain said cells in an undifferentiated pluripotent state.

3. (Amended) The method of Claim [2] 1, wherein the [haploid cell] oocyte is a human, non-human primate, bovine, porcine, or ovine oocyte [or blastomere].

4. (Amended) The method of Claim 3, wherein the [haploid] DNA is derived from a single individual [is] selected from the group consisting of human, bovine, primate, ovine, or porcine.

5. (Amended) The method of Claim 4, wherein the [cell] oocyte is a human or bovine oocyte and the [haploid] DNA is human DNA.

9. (Amended) The method of Claim 1, wherein the [haploid] DNA is [of a female origin] derived from a single individual female mammal.

10. (Amended) The method of Claim 1, wherein the [haploid] DNA is [of male origin] derived from a single individual female mammal.

11. (Amended) The method of Claim 1, wherein the [haploid cells are] oocyte comprises a human oocyte[s] containing [human male or female] DNA derived from a single individual male or male human.

13. (Amended) The method of Claim 1, further comprising implanting the pluripotent cells, or differentiated cells derived therefrom, [wherein said cells are implanted] at a desired site *in vivo* that is to be engrafted with cells or tissue.

14. (Amended) The method of claim 13, wherein [said cells] the pluripotent cells, or differentiated cells derived therefrom, are implanted in an immunocompromised non-human animal.

Please add the following new claim(s):

39. (New) A method for producing pluripotent (ES) cells that can be used to produce differentiated cells and tissues comprising:

(a) preparing an embryo comprising DNA derived from a single individual male or female mammal;

(b) isolating inner cell mass or cells therefrom and transferring said inner cell mass or cells to an *in vitro* media that inhibits differentiation of said inner cell mass derived therefrom; and

(c) culturing said inner cell mass cells or cells derived therefrom to maintain said cells in an undifferentiated, pluripotent state.

40. (New) The method of claim 39, wherein the preparing an embryo comprising DNA derived from a single individual male or female mammal comprises:

(a) transferring a haploid cell, or haploid nucleus derived therefrom, to an enucleated blastomere to thereby form a nuclear transfer embryo; and

(b) inhibiting the first cleavage of the nuclear transfer embryo.

41. (New) The method of claim 39, wherein the preparing an embryo comprising DNA derived from a single individual male or female mammal comprises transferring two haploid cells, or two haploid nuclei, to an enucleated blastomere.

42. (New) The method of claim 39, wherein the blastomere is a human, non-human primate, bovine, porcine, or ovine blastomere.

43. (New) The method of claim 39, wherein the DNA is derived from a single individual male or female mammal selected from the group consisting of a human, a primate, a bovine, a porcine, or an ovine.

44. (New) The method of claim 39, wherein the blastomere and the DNA are of the same species.

45. (New) The method of claim 39, wherein the DNA is derived from a single individual male mammal.

46. (New) The method of claim 39, wherein the DNA is derived from a single individual female mammal.

47. (New) The method of claim 39, wherein the DNA is genetically modified.

48. (New) The method of claim 39, further comprising culturing the pluripotent cells, whereby the cells differentiate.

49. (New) The method of claim 39, further comprising implanting the pluripotent cells, or differentiated cells derived therefrom, at a desired *in vivo* site that is to be engrafted with cells or tissue.

50. (New) The method of claim 49, further comprising implanting the pluripotent cells, or differentiated cells derived therefrom, in an immunocompromised animal.

51. (New) The method of claim 49, wherein said *in vivo* site is a wound, a joint, a muscle, a bone, or the central nervous system.

52. (New) Pluripotent cells produced by the method of claim 39.

53. (New) The pluripotent cells of claim 52, wherein the cells are primate cells.

54. (New) The pluripotent cells of claim 53, wherein the primate cells are human cells.

55. (New) Differentiated cells produced by the method of claim 48.

56. (New) The differentiated cells of claim 55, wherein the cells are primate cells.

57. (New) The differentiated cells of claim 56, wherein the primate cells are human cells.